CATALOG 56

NE-BUTT CO

BRAIDERS

New England Butt Co.

DIVISION OF *Wanskuck Company*

304 PEARL STREET

PROVIDENCE, R. I., 02907 U. S. A.

BRAIDING MACHINERY

CABLE ADDRESS—"BUTTCO"
CODES USED
BENTLEY'S AND A. B. C. 5TH EDITION

CATALOG NO. 56

Established 1842

New England Butt Company

Division of *Wanskuk Company*

304 Pearl Street

Providence 7, Rhode Island

U. S. A.

London Agents

James Day (Machinery) Ltd.
28 Maddox Street
Regent Street
London W. 1., England
(Close to Oxford Circus)

Mexican Agents

William Young & Co., S. A.
Mexico D. F.
Mexico

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Terms

To customers with approved credit, our terms are net cash within thirty days from date of invoice. No discounts are allowed for prepayment.

For Foreign Shipments, unless otherwise arranged, we require 25% cash with the order, the balance to be paid sight draft against Bill of Lading.

Shipment

The time of delivery named by us is subject to delay occasioned by fires, strikes, or other causes beyond our control. Under no circumstances do we guarantee delivery. Promises of shipment are made to be best of our ability. Orders placed for material that has to be made up cannot be countermanded though promised delivery date has been exceeded.

Liabilities

Our responsibility terminates upon delivery of goods in first-class condition to transportation company or other carrier. Claims for shortages or breakage should be properly noted on transportation company's receipt, and immediately reported to us; and we will co-operate with customer to obtain satisfactory adjustment.

Guarantee

Machines equipped with our standard parts are guaranteed for 6 months against faulty workmanship and material. Any material which proves to be defective when used for the purpose intended will be replaced.

No charges for labor or expense required by defective parts or occasioned by them will be allowed.

Prices

All quotations are F. O. B. our plant, Providence, or in case of export orders, F. A. S. New York City.

Ocean Freight Marine Insurance and Consular charges must be Prepaid and are in Addition to our prices.

All prices are subject to change without notice.

In Addition To The Machines Shown in This Catalog

We build a very complete line of Machinery for the insulation of electric wires and cables, consisting of braiders with one, two and three decks, taping and rubber-covering machines, together with cabling, twinning, measuring, bunching and winding machinery and wire rope machines. These are shown in a separate catalog.

We also build Sash Cord or Solid Cord Braiding Machines, which are shown in a separate catalog, which will be sent on request.

Braiding Machines

A BRAIDING Machine is constructed with two plates between which a train of gears operates. These gears have flanges or horns at the top which engage the bottom end of the bobbin carriers on which the yarn is held. The upper of the two plates is called the Top Plate, and is formed with a serpentine path to guide the carriers.

By the use of jigs and special fixtures, the parts are accurately made and are interchangeable. The top plates are accurately ground to gauge and the runs or grooves in which the carriers travel are carefully designed and profile milled. Carriers are all milled to gauge and must pass a rigid inspection.

Bottom and top plates have square broached holes and special square bolts which always keep the quoits in proper position.

The Horn Gears are machined and the Teeth and Horns are cut.

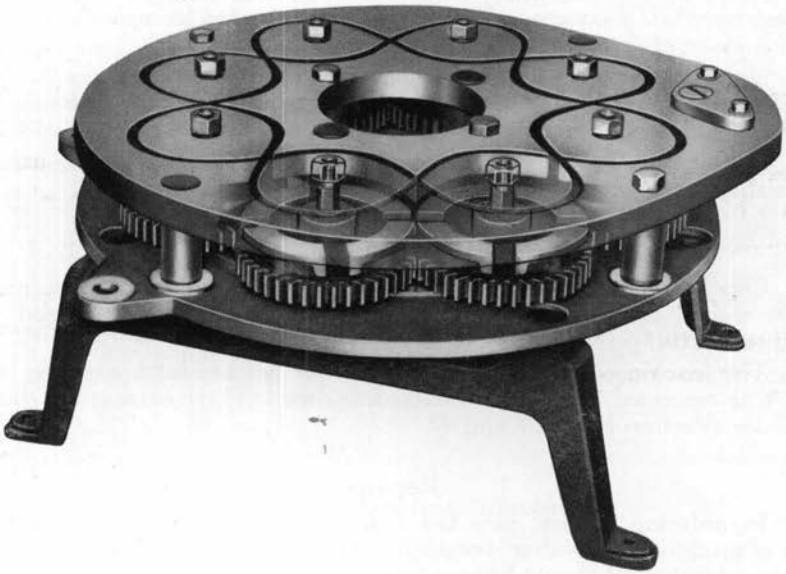


Fig. 1. Showing details of construction

The Bobbin Carrier is milled to such shape that it fits into the groove in the top plate by which it is guided, and the lower end of the carrier is in the form of a lug which engages in the horns of the horn gears, by means of which it is carried around the machine.

The bobbin carrier is of such a design that it accomplishes the following things:

It carries the bobbin of yarn.

It provides suitable tension for the yarn.

It has an arrangement for letting off this yarn evenly.

It provides some method of stopping the machine when the yarn breaks.

Various styles of bobbin carriers can be furnished. See pages 36, 37, 38, 39, 42.

Description

The braiding machines shown in this catalog are built in two sizes, No. 1 and No. 2.

They are run by a belt from a driving pulley. Machines with 32 carriers and less are built with short legs, and are designed to be placed on a bench or table. Machines with over 32 carriers are built on high legs and are arranged to be driven from pulleys on a drive shaft placed at the back of the machine, near the floor.

All braiders are fitted with automatic stop motion.

We build larger sizes of braiding machines which are shown on separate circulars.

Bobbins

No. 1 braiders are the smallest size and take bobbins 1-5/16″ Diameter by 3¼″ Traverse. They are generally used for nylon and other braids made of fine yarn.

No. 2 braiders are larger and heavier machines which carry bobbins 1⅞″ Diameter by 3½″ or 5″ Traverse, and are used for making shoe laces, spindle bandings, tapes, etc.

Bobbins are not included in the price of the machines, but can be furnished at an extra price. See page 41.

Cop Holders

Cop holders can be provided on our machines to use the yarn in cop form wound on ⅝″ tubes. These are described on Page 41 and are charged, extra.

The machines can be provided with our bottom latch carriers; and when so equipped, take either bobbins or cops. These carriers are shown and described on Pages 37 and 42.

Repairs

In ordering repairs, give the number and name of part; also the size of machine for which it is wanted. For old machines, sketch or sample of the part desired should be sent with the order.

We carry a large variety of parts in stock for prompt delivery, but cannot always furnish parts for machines over ten years old.

For lists, see Pages 19 to 24.

Optional Features

Flat braiders of 25 carriers or over are furnished with selvedge posts and bars. The smaller sizes do not have these parts unless so ordered, and an extra charge is made for them.

Flat or round braiders can be stopped off to flat machines with a less number of carriers. See Page 40.

We can furnish hollow quoit bolts and guides for inserting warp threads in the braid. These are not supplied with braiders unless specified, and an extra charge is made for them.

Power

Our Braiding Machines are very light running, requiring a small amount of power.

One H. P. is sufficient to run 200 to 600 carriers of our No. 1 and No. 2 Braiders. This includes the power required to run the shafting and fixtures used in connection with the braiders, but is dependent upon the horn gear speed and size of the braider.

Production from Braiding Machines

THE production obtained from Braiding Machines is given in the table below for our No. 1 and No. 2 Machines.

These figures are based on ordinary speeds, and are given in feet per hour. See note below for higher speeds.

No allowance is made in these figures for stopping the machines for refilling the bobbins or piecing the ends.

The number of stitches or picks made in one revolution of the carrier around any braiding machine is equal to the number of carriers divided by 2.

Stitches per inch	Production in feet per hour	Stitches per inch	Production in feet per hour	Stitches per inch	Production in feet per hour	Stitches per inch	Production in feet per hour	Stitches per inch	Production in feet per hour
2	720	12	120	22	65.5	32	45	42	34 3
3	480	13	110	23	62.5	33	43.6	43	33.5
4	360	14	103	24	60	34	42.3	44	32.7
5	288	15	96	25	57.5	35	41.2	45	32
6	240	16	90	26	55.5	36	40	46	31.3
7	205	17	84.7	27	53.5	37	38.9	47	30.6
8	180	18	80	28	51.5	38	37.9	48	30
9	160	19	75.8	29	49.6	39	36.9	49	29.4
10	144	20	72	30	48	40	36	50	28.8
11	131	21	68.5	31	46.5	41	35.2		

Speed of Braiding Machines

The ordinary pulley speed is as follows:

No. 1 Braiders with outside drive	144 r.p.m.
No. 2 Braiders with outside drive	180 r.p.m.
No. 1 Braiders with inside drive	135 r.p.m.
No. 2 Braiders with inside drive	170 r.p.m.

The output of a Braiding Machine at these speeds will be 288 picks or stitches per minute.

Higher Speeds

On most classes of work where the yarn is of sufficient strength, this speed can be increased 10% to 25% by using bottom latch carriers. See Pages 37 and 38.

On many classes of work the above speeds can be greatly increased, in some cases up to 300 r.p.m. by using Hagg High Speed Spring Carriers. See Page 39, or Mosspeed Carriers, Page 42.

Improved Braiding Machine Construction

(Patent Sept. 6, 1923) — Patent 1389672

IN this new design of machine, among other improvements, we have substituted a finished steel bar for the cast iron cross bar. This makes the machine more rigid, neater in appearance, and one more easily cleaned.

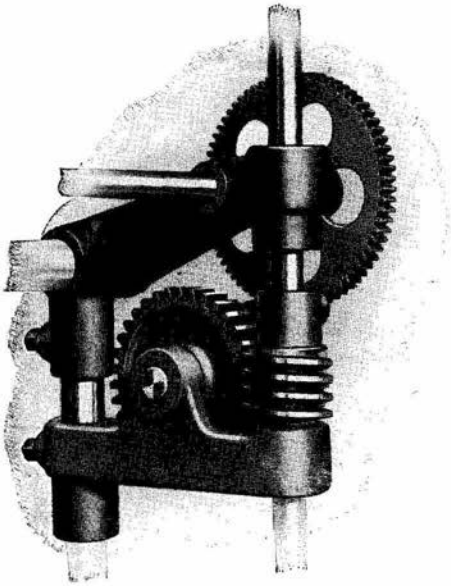


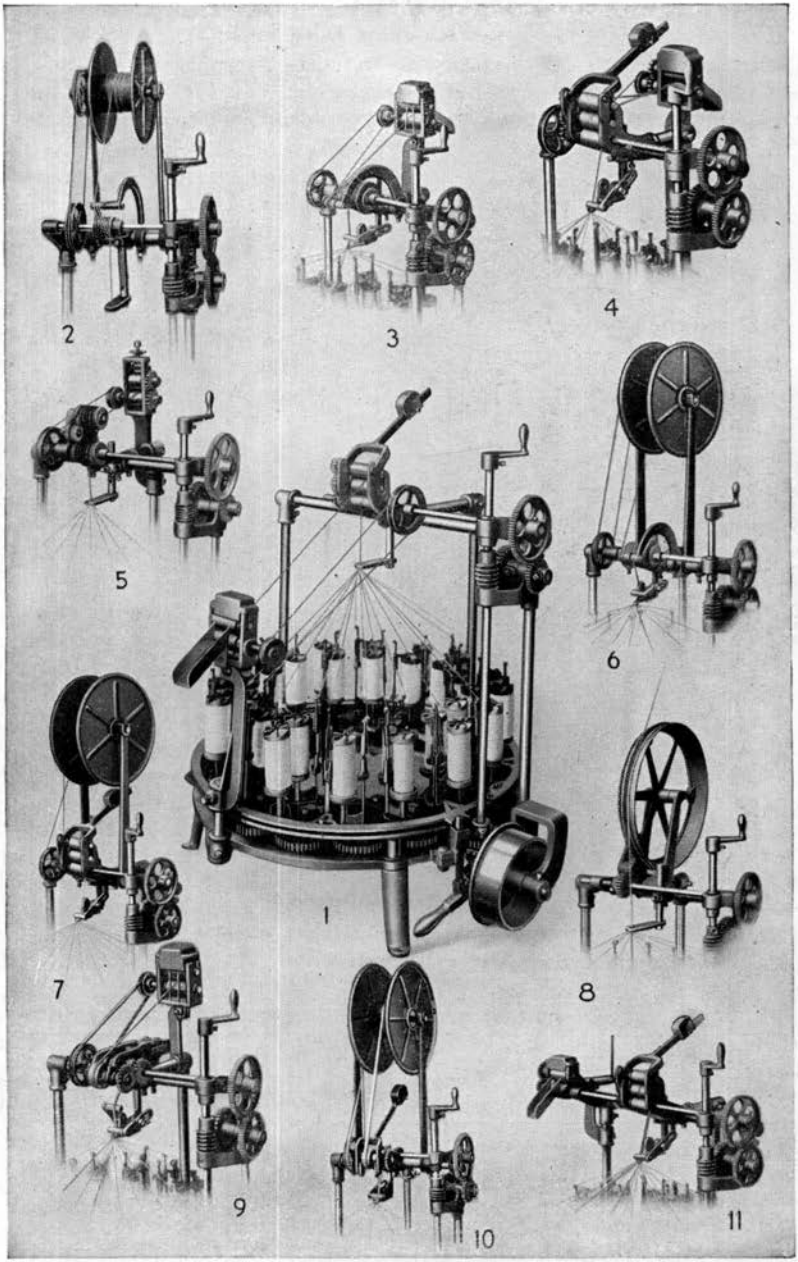
Fig. 1.

The worm, worm gear, and worm gear bearings as shown on figure 1 have all been greatly strengthened and improved in design. The worm and worm gear are of cast iron accurately machined and of much heavier construction than formerly, presenting a wider face for wear. The worm gear bearing is so made that it slides freely on the right-hand upright and the upright shaft, thereby constantly maintaining the correct relative position of worm, worm gear, upright, and upright shaft.

On page 11 we illustrate our improved method of attaching the various types and combinations of feed mechanisms and takeoffs to our Braiding Machines. Although we have improved the design of all the feeding mechanisms, we have in no way changed the principle of their operation, and can furnish standard and interchangeable parts. Each individual part that goes towards making up any and all of the combinations shown on page 11 is accurately made and is interchangeable on any No. 1 or No. 2 Braider of this type. This gives our customers their choice of any combination shown in the cut as well as many which we have not shown. Another advantage in this construction is the possibility of changing from one type of feed to any other that might be required by a change of product such as from flat to round braid. These changes of feed mechanisms are made in an easy manner, and no machining or fitting is necessary, as all parts are self-aligning.

Illustration on opposite page shows the following (overhead) arrangements:

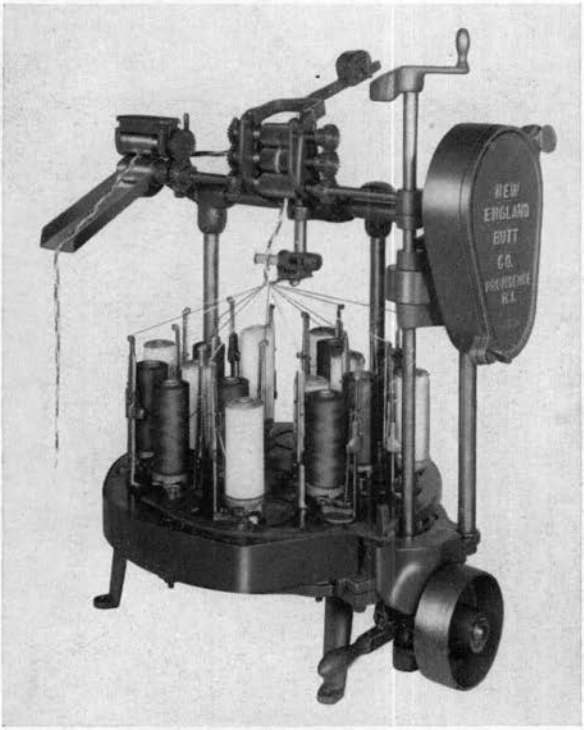
	Take Up	Take Off
(1)	3 Iron Roll	with Front Can.
(2)	2 Step Brass Roll	with 8″ x 3″ Reel.
(3)	Wood Scored Roll	with Back Can.
(4)	3 Iron Roll	with Back Can.
(5)	Cord	with Back Can.
(6)	Wood Scored Roll	with 12″ x 4″ Reel.
(7)	3 Iron Roll	with 12″ x 4″ Reel.
(8)	10″ Sheave	
(9)	2 Roll Screw	with Back Can.
(10)	2 Roll Lever	with 12″ x 4″ Reel
(11)	3 Iron Roll	with Side Can.



TYPES OF OVERHEAD ARRANGEMENTS FOR BRAIDING MACHINES

Flat Braiders—Small

With short legs



17-Carrier No. 2 Braider

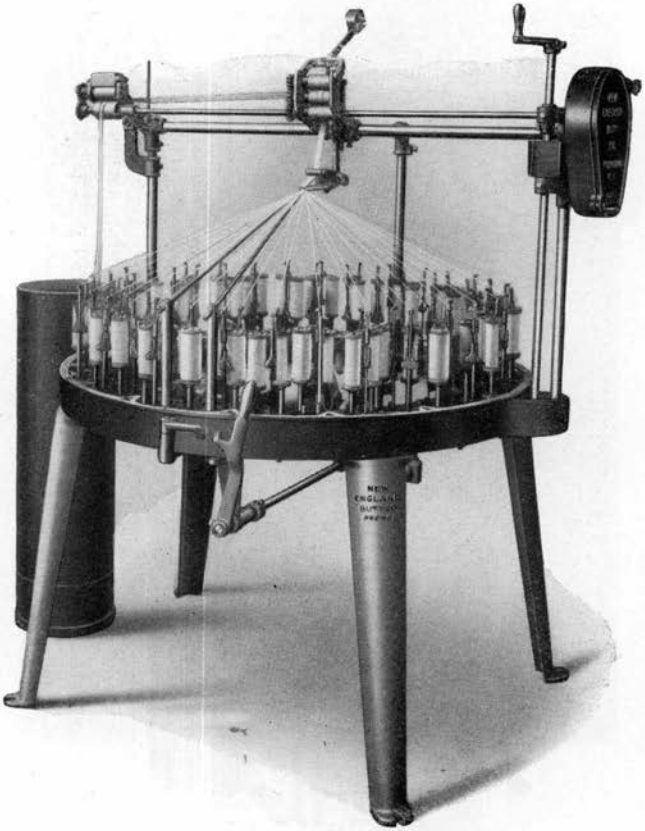
No. 11 Type of Overhead

(three-roll take-up and side can take-off)

No. 1 BRAIDERS					No. 2 BRAIDERS				
Carriers	Bench Space		Net Weight Lbs.	Code	Carriers	Bench Space		Net Weight Lbs.	Code
	Width	Depth				Width	Depth		
9	18″	11¼″	85	Bacante	13	20¼″	15¾″	110	Begone
13	18¼″	13½″	95	Baccarat	17	22¾″	18¼″	130	Begot
17	20¼″	14¾″	110	Bacchator	21	25″	21″	140	Begriff
21	21¾″	17½″	120	Bacharel	25	28″	23¼″	145	Beguile
25	24½″	19¾″	125	Bachiocco	29	30¼*	25¼″	170	Begums
29	26″	21½″	145	Bachnass					

Flat Braiders—Large

With high legs

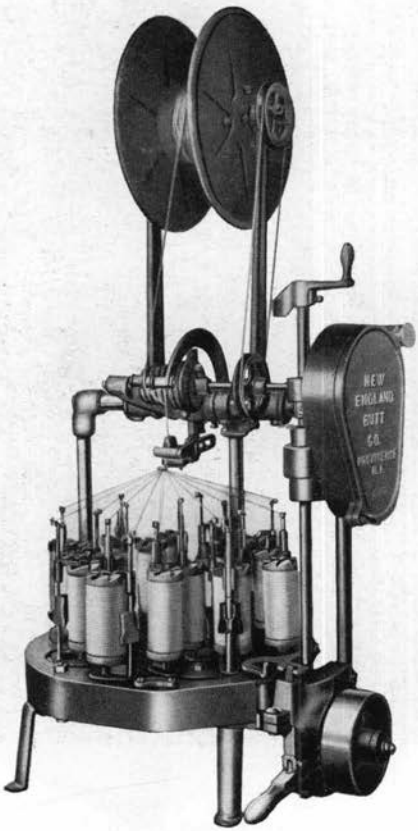


65-Carrier No. 1 Braider
No. 11 Type of Overhead
(three-roll take-up and side can take-off)

No. 1 BRAIDERS					No. 2 BRAIDERS				
Carriers	Floor Space		Net Weight Lbs.	Code	Carriers	Floor Space		Net Weight Lbs.	Code
	Width	Depth				Width	Depth		
33	28¾″	24″	185	Bachtal	33	33½″	24¼″	230	Behorned
41	30½″	29¼″	240	Baciamano	41	36″	35½″	285	Behave
45	32″	31⅛″	250	Baciandoci	45	39 3/16″	35 5/16″	300	Behead
49	34½″	33½″	275	Baciatrice	49	42⅛″	37½″	310	Behept
53	37⅝″	33½″	275	Bacillary	53	44⅝″	40⅝″	350	Behind
57	38½″	37″	295	Baciuccano	57	46¼″	43¾″	380	Behoves
61	40″	39″	315	Backam	61	48″	47″	400	Behoney
65	42¼″	41½″	355	Backbite	65	52¾″	46⅞″	450	Behold
97	58″	57″	481	Baclerons	97	74″	72″	675	Behoof

Round Braiders—Small

With short legs



16-Carrier No. 2 Braider

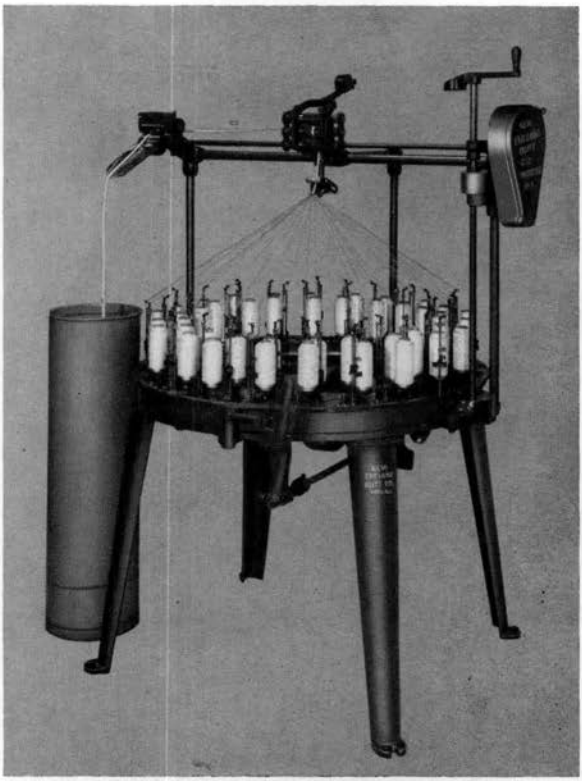
No. 6 Type of Overhead

(scored roll take-up and reel)

No. 1 BRAIDERS					No. 2 BRAIDERS				
Carriers	Bench Space		Net Weight Lbs.	Code	Carriers	Bench Space		Net Weight Lbs.	Code
	Width	Depth				Width	Depth		
8	14¾″	14″	75	Baculite	8	17¼″	13¼″	90	Badehut
12	17¾″	13″	80	Baculos	12	19½″	15¼″	100	Badelust
16	19¾″	15″	100	Badayear	16	22″	17″	115	Baderla
20	22″	17″	105	Badame	20	24½″	16¾″	125	Badezeit
24	23¾″	19¼″	125	Badano	24	27¾″	22½″	155	Badger
28	25¾″	21″	140	Badander	28	30″	25″	165	Badgoed
32	27¼″	23″	160	Baddam	32	32½″	27¼″	190	Bait

Round Braiders—Large

With high legs



44-Carrier No. 2 Braider

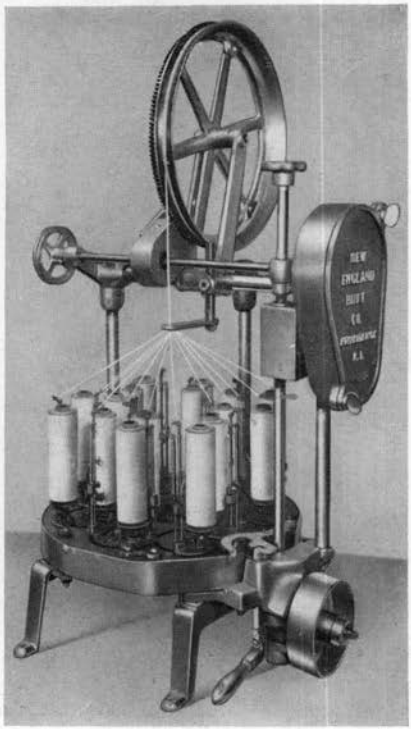
No. 11 Type of Overhead

(three-roll take-up and side can take-off)

No. 1 BRAIDERS					No. 2 BRAIDERS				
Carriers	Floor Space		Net Weight Lbs.	Code	Carriers	Floor Space		Net Weight Lbs.	Code
	Width	Depth				Width	Depth		
32	27¼″	23″	210	Badisso	32	32½″	27¼″	260	Ballot
36	30¼″	24¾″	225	Baditis	36	35¼″	29¾″	280	Baectie
40	31⅛″	27″	240	Badly	40	36¼″	33⅞″	300	Balcony
44	31¾″	30½″	250	Badmeid	44	38″	36½″	315	Bald
48	32½″	31½″	260	Badminton	48	40¼″	39″	335	Baecker
52	33⅛″	32¼″	280	Badmutsen	52	44 9/16″	38⅛″	350	Baecula
56	37¾″	36½″	325	Badschip	64	51¾″	50″	425	Baeffen
64	42¾″	39¼″	415	Badours	72	55¼″	50¾″	525	Baerte
96	57⅞″	51⅛″	500	Badstoel					

Round Braiders—Small

With short legs



16-Carrier Round Braider

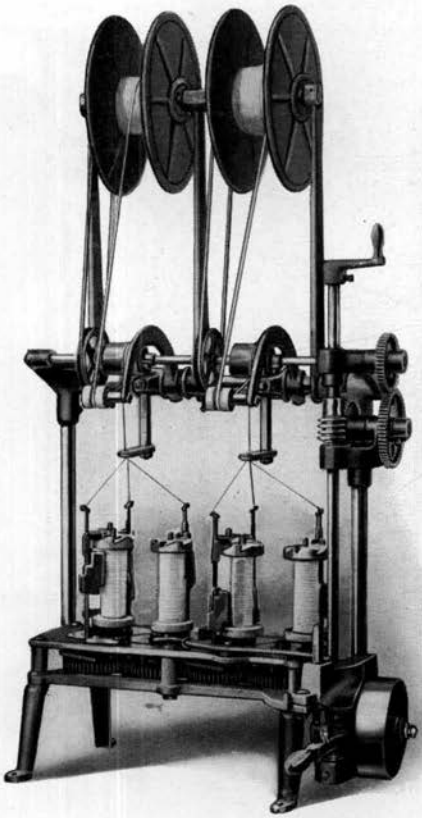
No. 8 Type of Overhead

(wheel take-up—10″, 14″ or 18″)

No. 1 BRAIDERS					No. 2 BRAIDERS				
Carriers	Bench Space		Net Weight Lbs.	Code	Carriers	Bench Space		Net Weight Lbs.	Code
	Width	Depth				Width	Depth		
8	14¾″	14″	75	Perimus	8	17¼″	13¼″	90	Bandoman
12	17¾″	13″	80	Penates	12	19½″	15¼″	100	Bandstock
16	19¾″	15″	100	Peream	16	22″	17″	115	Bangard
20	22″	17″	105	Proteas	20	24½″	16¾″	125	Bangonet
24	23¾″	19¼″	125	Placet	24	27¾″	22½″	155	Banistan
28	25¾″	21″	140	Primum	28	30″	25″	165	Bankbein
32	27¼″	23″	160	Princeps	32	32½″	27¼″	190	Bankets

Candle Wick Braiders

With short legs



3-Carrier Double Braider

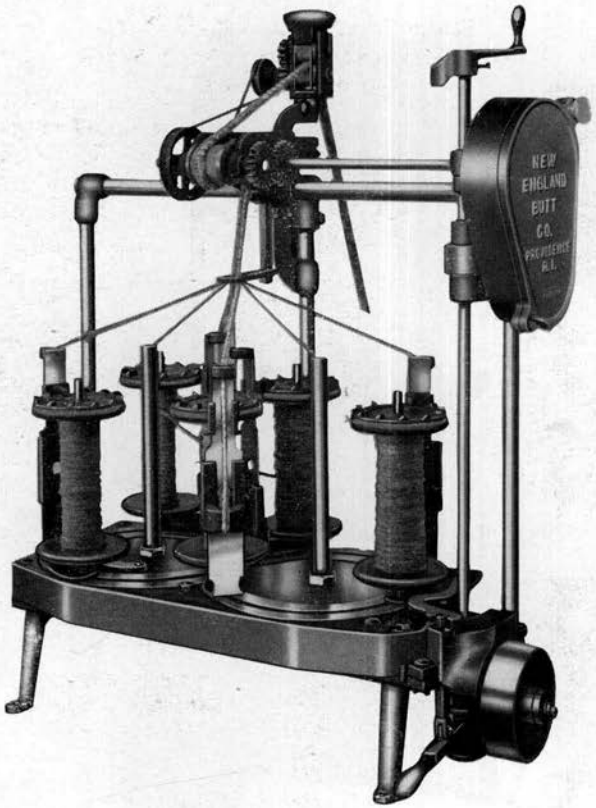
with sand paper covered wood roll, take-ups, and reels

This machine consists of two 3-carrier braiders in one frame, and takes special bobbins, 2⅜″ head, 3¾″ traverse. It can be furnished with bottom latch carriers to use either bobbins or cops.

Bobbins or cop holders are not included in the price of the machine.
Bench space, 24″ wide, 12½″ deep. Net weight, 95 lbs.
Pulley Speed 180 R. P. M.
Picks per Minute, 240.
Code Word with Wood roll take-up and reel—BAIANTE.
Code Word with 2-Roll Screw Take-up and reel—BEDUCK.

Rug Braiders

With short legs



5-Carrier Large Braider

These machines are designed especially for making rug material, hat felts and straws; and are made in three carrier and five carrier sizes.

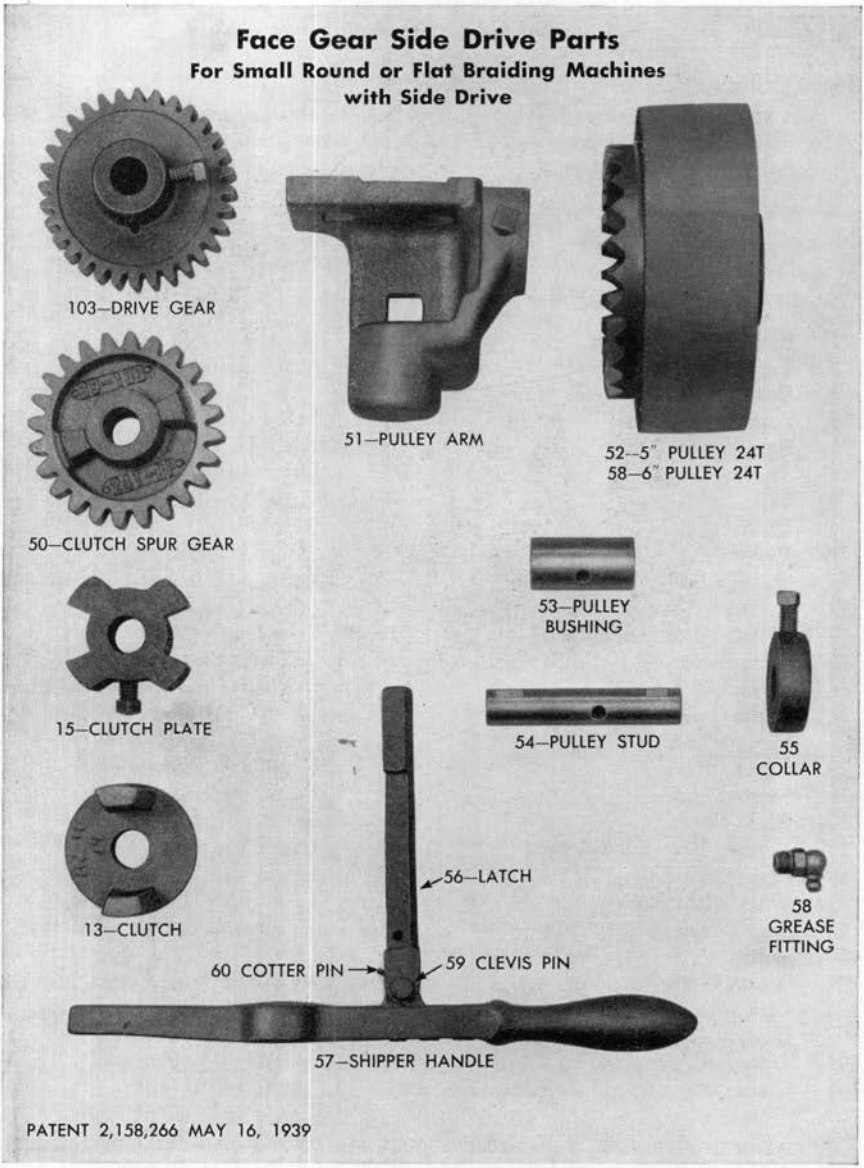
The machine illustrated has five carriers and is equipped for rug material.

Send us a sample of the material you wish to braid and we will tell you whether or not our machine will handle it.

Driving pulley speed recommended—180 R. P. M.

Number Carriers	Size Bobbins	Bench Space	Net Weight Lbs.	Picks per Min.	Code
3 Large	4½" x 6½"	23½" x 16½"	110	120	Bedtafel
5 Large	4½" x 6½"	32" x 17"	130	144	Bedrench

Braiding Machine Parts



When Ordering Parts

give name and number of part and specify whether it is for No. 1 or No. 2 Braider also give number of carriers in the machine for which part is wanted. A sample should be sent of parts wanted for Braiders built before 1920.

When Ordering Carriers

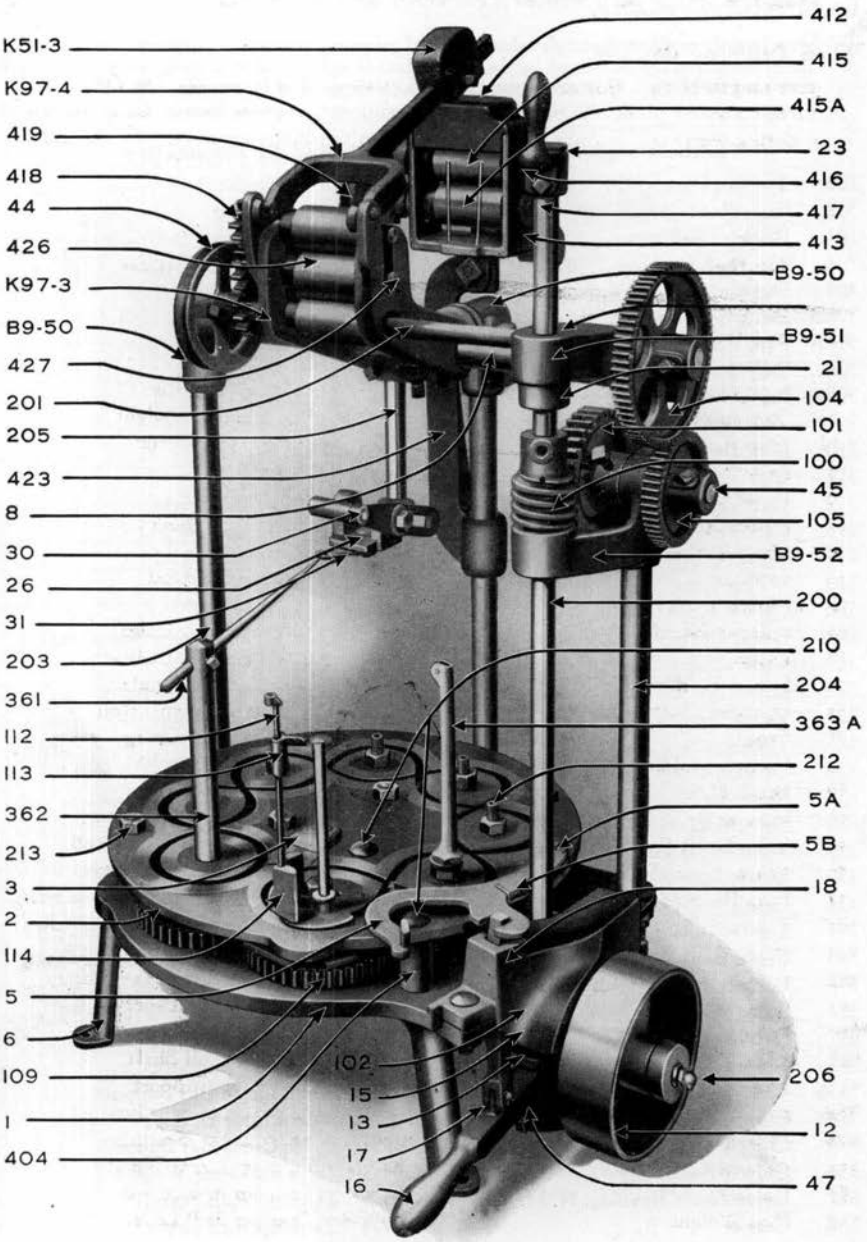
give length of part through which thread passes; also state whether they are the three-cornered or flat-back style. The latter information should be given when ordering weights. Bottom weights should be specified in ounces. See page 38.

Numbers and Names of Parts Indicated in Illustration

1	Bottom Plate	114	Bottom Weight
2	Top Plate	200	Upright Shaft
3	Button	201	Cross Shaft
5	Stop-motion	203	Left-Hand Upright
5a	Stop-motion Screw	204	Right-Hand Upright
5b	Stop-motion Spring	205	Drop Former Stud
6	Leg	206	Pulley Stud
8	Cross Bar	210	Rim Bolt
11	Pulley Arm	212	Warp Stud (hollow)
12	Driving Pulley	212a	Quoit Stud (solid)
13	Clutch	213	Square Rim Stud
15	Clutch Plate	361	Selvedge Bar
16	Shipper Handle	362	Selvedge Post (solid)
17	Latch	362a	Selvedge Post (hollow)
18	Latch Guide	363	Warp Guide Regular
21	Upright Shaft Collar	363a	Warp Guide with Roll
23	Crank	403	Horn Gear Bushing
26	Former Holder	404	Rim Bushing
30	Braid Guide	412	Can Take-off Weight
31	Former (give size of hole)	413	Can Take-off Roll Stand
44	Cross Shaft Scored Pulley	415	Upper Can Take-off Roll
45	Worm Gear Shaft	415a	Lower Can Take-off Roll
47	Step Bushing	416	Upper Can Take-off Roll Shaft
100	Worm	417	Lower Can Take-off Roll Shaft
101	Worm Gear	418	Roll Gear
102	Clutch Bevel Gear	419	Can Take-off Scored Pulley
103	Driving Gear	423	Can Take-off Bracket
104	Change Gear (give No. of teeth)	426	Feed Rolls
105	Change Gear (give No. of teeth)	427	Take-up Roll Shaft
109a	5-Horn Gear, Low	B9-50	Brace Bar Support
109b	5-Horn Gear, High	B9-51	R. H. Cross Bar Support
109c	4-Horn Gear, Low	B9-52	Worm Gear Bearing
109d	4-Horn Gear, High	K-51-3	Take-up Lever Weight
112	Carrier	K-97-3	Take-up Roll Stand
113	Top Weight	K-97-4	Take-up Roll Lever

Braiding Machine Parts

For Small Round or Flat Braiding Machines with Side Drive and Single Stop-motion



When Ordering Parts

give name and number of part and specify whether it is for No. 1 or No. 2 Braider, also give number of carriers in the machine for which part is wanted. A sample should be sent of parts wanted for Braiders built before 1920.

When Ordering Carriers

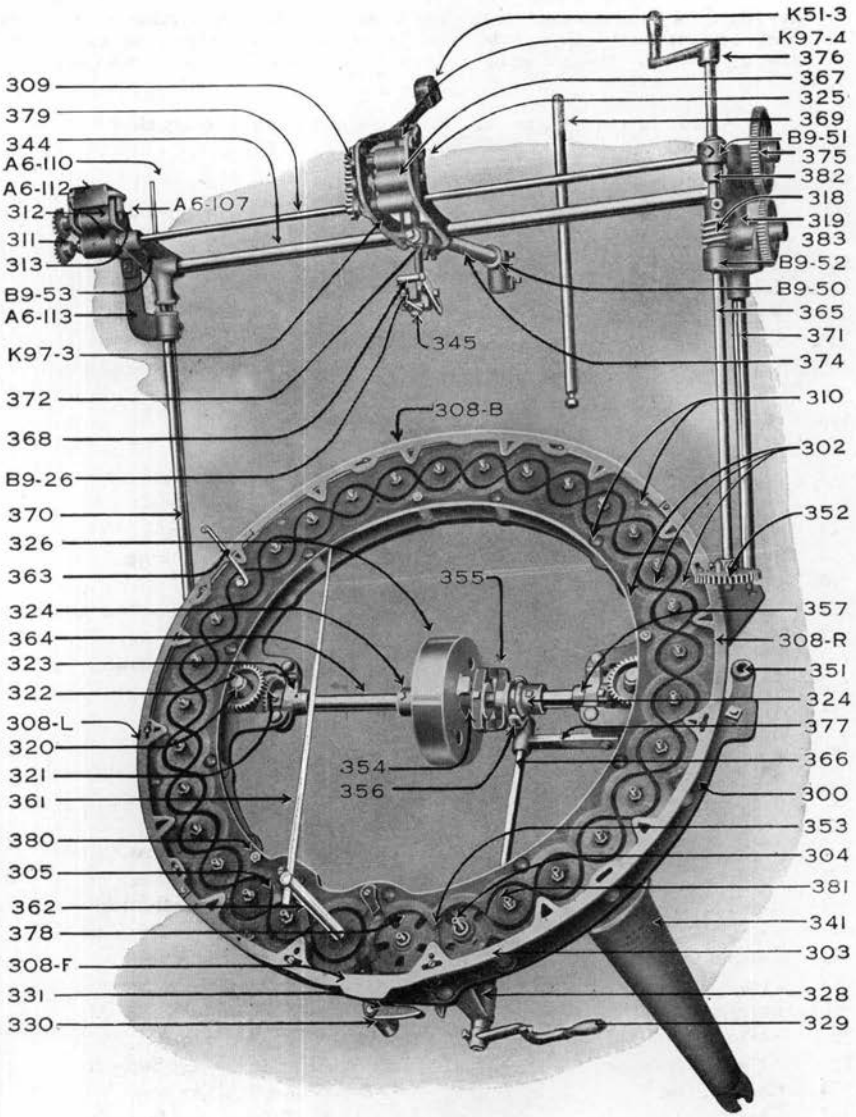
give length of part through which thread passes; also state whether they are the three-cornered or flat-back style. The latter information should be given when ordering weights. Bottom weights should be specified in ounces. See Page 38.

Numbers and Names of Parts Indicated in Illustration

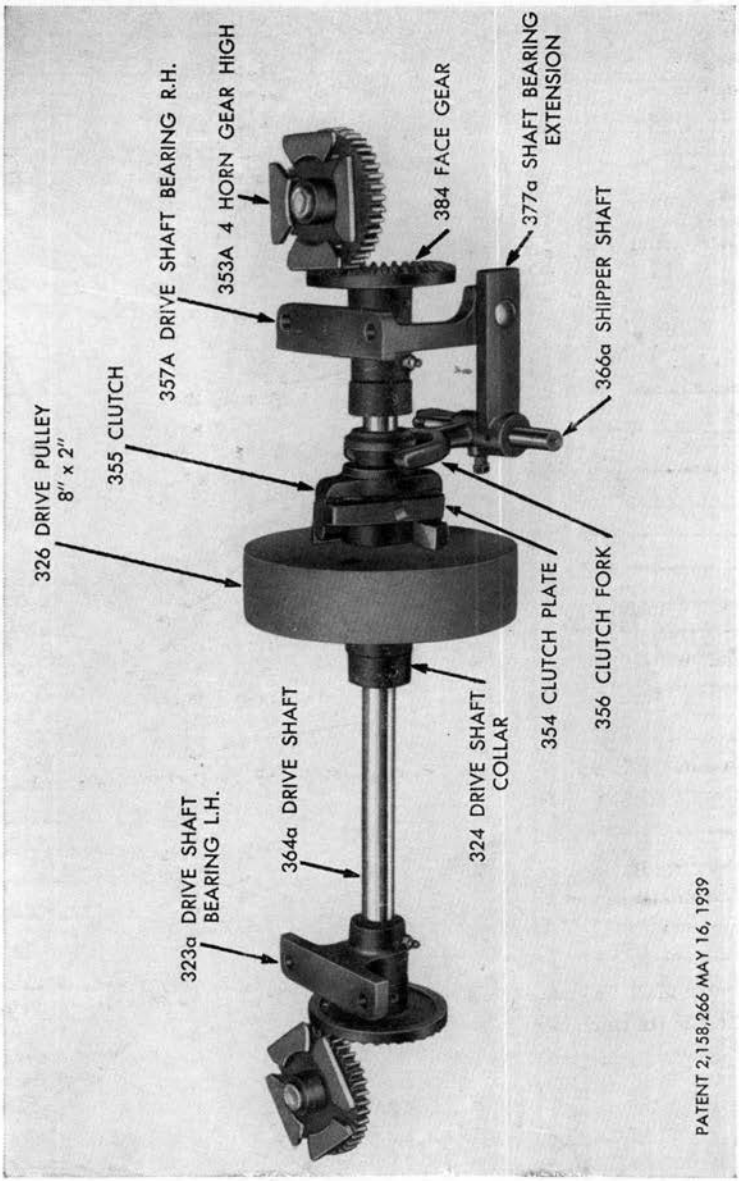
300	Bottom Plate
302	Top Plate
303	Rough Bushing
304	Finished Bushing
305	Button
308B	Back Section Rim Stop-motion
308F	Front Section Rim Stop-motion
308L	Left Section Rim Stop-motion
308R	Right Section Rim Stop-motion
309	Take-up Roll Gear
310	Rim Bolts
311	Can Take-off Roll Gear
312	Can Take-off Roll
313	Can Take-off Roll Shaft
318	Worm
319	Worm Gear
320	Crown Gear
321	Bevel Gear
322	Crown Gear Stud
323	Drive Shaft Bearing, L. H.
324	Drive Shaft Collar
325	Take-up Roll Shaft
326	Driving Pulley, 8 x 2
327	Shipping Shaft Collar
328	Shipper Hanger
329	Shipper Handle
330	Latch Stand
331	Latch
341	Leg
344	Cross Bar
345	Former (give size of hole)
351	Step
352	Driving Gear
353a	4-Horn Gear, High
353b	4-Horn Gear, Low
354	Clutch Plate
355	Clutch
356	Clutch Fork
357	Drive Shaft Bearing, R. H.
358	Carrier
359	Bottom Weight
360	Top Weight
361	Selvedge Bar
362	Selvedge Post, (solid)
362a	Selvedge Post, (hollow)
363	Warp-Guide, Regular
363a	Warp Guide with Roll
364	Drive Shaft
365	Upright Shaft
366	Shipper Shaft
367	Take-up Roll
368	Braid Guide
369	Back Upright
370	Left-Hand Upright
371	Right-Hand Upright
372	Drop Former Stud
373	Shipper Shaft Spring
374	Brace Bar
375	Change Gear (give No. of teeth)
376	Crank
377	Shaft Bearing Extension
378a	5-Horn Gear, High
378b	5-Horn Gear, Low
379	Cross Shaft
380	Square Rim Stud
381	Quoit Stud (solid)
381a	Warp Stud (hollow)
382	Upright Shaft Collar
383	Worm Gear Shaft
A6-107	Can Take-off Roll Stand
A6-110	Can Take-off Braid Guide
A6-112	Can Take-off Weight
A6-113	Can Take-off Bracket
B9-26	Former Holder
B9-50	Brace Bar Support
B9-51	R. H. Cross Bar Support
B9-52	Worm Gear Bearing
B9-53	L. H. Cross Bar Support
K-51-3	Take-up Lever Weight
K-97-3	Take-up Roll Stand
K-97-4	Take-up Roll Lever

Braiding Machine Parts

For Large Round or Flat Braiding Machines with Center Drive and Rim Stop-motion



Braiding Machine Parts
Face Gear Center Drive Parts
For Large Round or Flat Braiding Machines



Below are listed some of the articles made on Braiding Machines:

Round Braids

1. Fish lines
2. Shoe Laces
3. Corset Laces
4. Banding
5. Curtain Cords
6. Clothes Lines
7. Wicking
8. Shoe Thread
9. Sash Cord
10. Packing
11. Rubber Tube Covering
12. Gas Tubing
13. Hose Covering
14. Bell Cord
15. Radio Cord
16. Automobile Assemblies
17. Hose Fabric
18. Round Elastic Braids
19. Covering for Electric Wires and Cables
20. Mould Covering
21. Tire Cord

Flat Braids

1. Shoe Laces
2. Corset Laces
3. Tapes
4. Binding
5. Dress Braids
6. Coat Trimmings
7. Awning Braids
8. Flat Elastic Braids
9. Military Braids
10. Rickrack Braids
11. Lingerie Braids

Special Braids

1. Candle Wicking
2. Rug Braids
3. Soutache Braids
4. Square Braids
5. Square Cords
6. Vienna or Oval Elastic Braids
7. President Braids
8. Packing Braids

Braiding Machines are also used for making braid from wire for various purposes as follows:

1. Heater Cords
2. Picture Cords
3. Flexible Hose Covering
4. Cable Covering
5. Antennae Wires
6. Tire Beads

We are glad to analyze samples of Braid and to recommend suitable machines for its manufacture.

Braider Tables

Recommended for use with our machines

THESE tables are built in different sizes and styles. They can be made any length desired, and are built with cast iron frames and hard wood stringers. They are furnished complete with all the necessary shafting, hangers, pulleys, and belt shifters. The main shaft boxes are of the self-aligning type, with self-oiling features.

The tables can be furnished either with or without the overhead work. The overhead work consists of beams carried at a suitable height, for holding the reel brackets and reels. A traverse motion is provided which extends the whole length of the table and distributes the braid evenly on the reels. This traverse motion is adjustable for different widths of reels.

The Braider Tables are furnished in either single or double form. On double tables such as are generally used, the braiders are placed back to back as shown on Page 27.

The tables are located in a room in such a way that the operator works in the aisle, with braiders on each side.

When tables are equipped with complete overhead as illustrated, the wind-up reels and brackets are included in cost of the tables, and these parts are deducted from price of the braiders.

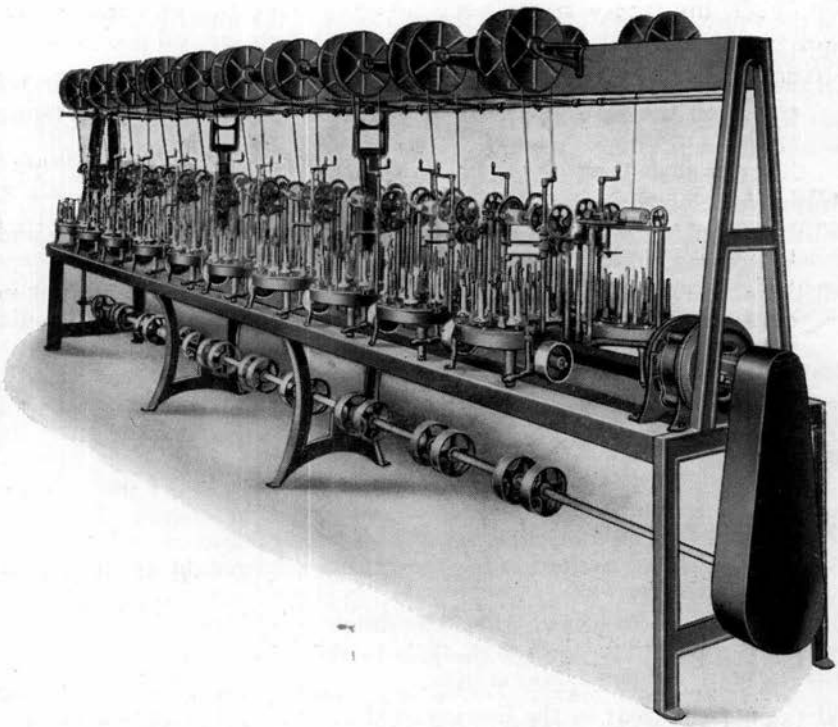
When ordering Braider Tables or requesting prices, specify the size of braiders and style of take-up on braiders, also the number of braiders on a side.

State whether single row or double row table is required.

State whether wanted with or without overhead. If wanted with overhead, give size of Reel. We can furnish any of the following sizes: 8″ x 3″, 10″ x 3″, 12″ x 3″, or 12″ x 4″. State whether with or without traverse motion.

Special Tables

We build various other types of tables for holding Braiders, Winders, Armoring Machines, etc., used in the manufacture of Insulated Wire.



Double Row Braider Table with reels overhead, and provided with traverse motion

Directions for Oiling Braiding Machines with Outside Drive

Oil the clutch bevel gear through the hole in the driving gear.

Oil the upright shaft in the bearing in the right-hand cross bar support, in the worm gear bearing, and in the step bushing at the bottom of the shaft.

Oil the worm gear shaft through the two holes in the worm gear bearing.

Oil the horn gears through the holes in the top plate.

Oil the carrier-run in the top plate by placing a few drops of oil at various places on the plate in the path of the carriers so that the rotating of the carriers will spread it evenly on the plate.

Oil the cross shaft through the holes in the bearings.

Brush grease on the worm and worm gear.

A little oil rubbed with the fingers on the carrier stem where the top and bottom weights slide will insure smooth action.

All the above parts should be well oiled before the machines are put in operation. The driving pulley and carrier-run in the top plate should be oiled three times a week; all other parts at least once a week.

Directions for Oiling Braiding Machines with Inside Drive

Grease the pulley through the fittings in the hub.

Grease the driving shaft through the fittings in the right and left drive shaft bearings.

Oil the clutch in the groove where the clutch fork slides.

Oil the shipper shaft through the hole in the shipper shaft bearing near the clutch fork.

Oil the upright shaft in the bearing in the right-hand cross bar support, in the worm gear bearing, and in the hole in the driving gear near the bottom of the shaft.

Oil the worm gear shaft through the two holes in the worm gear bearing.

Oil the horn gears through the holes in the top plate.

Oil the carrier-run in the top plate by placing a few drops of oil at various places on the plate in the path of the carriers so that the rotating of the carriers will spread it evenly.

Oil the cross shaft through the holes in the bearings.

Brush grease on the worm and worm gear.

A little oil rubbed with the fingers on the carrier stem where the top and bottom weights slide will insure smooth action.

All the above parts should be oiled before putting the machines in operation. The driving pulley and carrier-run in the top plate should be oiled three times a week. All other parts should be oiled at least once a week.

Directions for Threading Up and Operating Braiding Machines

1. If bobbins are used, see that the yarn is wound evenly and in such direction that the yarn in pulling off will bring the straight side of the ratchets on the head of the bobbin against the pawl of the top weight or bottom latch.
2. If the yarn is used in cop form, see that the cops are put on the cop holders so that the yarn in pulling off will bring the straight side of the ratchet on the cop holder against the pawl of the bottom latch.
3. Pass the end of the yarn through the hole in the middle of the stem of the carrier, then down under the bottom weight, and up on the outside of the stem, through the hole in the top. Pull about a foot of yarn through each carrier.
4. When the carriers are all thus threaded up, group the ends of yarn all in one hand, hold them over the center of the Braider near the former, and give the machine a few turns by hand or power. This will begin to form braid and will hold the ends of yarn together.
5. Pass these ends as a whole up through the former and start the machine by power until enough braid is formed to pass around the take-up. The machine can then be started, care being taken to see that the braid is kept from slackening up until it is taken care of by the take-off rolls or the reel.
6. The purpose of the bottom weight is to provide the proper tension for the yarn and also to stop the machine when a thread breaks. When a thread breaks or a bobbin runs out, a bottom weight drops to the bottom of the carrier and in that position will strike the stop motion lever which stops the machine.
7. The purpose of the top weight is to keep the bobbin from unwinding until the bottom weight is raised and lifts it sufficiently to let off a supply of yarn.
8. The number of picks or stitches per inch of the braid can be changed by using different sizes of change gears on the worm gear shaft. The worm gear bearing can be moved up or down on the upright until the gears are in proper mesh.
9. On tubular Braiders, the former should always be set over the center of the machine. The height of the former should be adjusted up or down to the proper position of the braiding point.
10. On flat Braiders, the former should be set from $\frac{1}{2}''$ to $1\frac{1}{2}''$ in front of the center of the machine, and should be adjusted up or down to the proper braiding point.
11. Flat braid can be varied considerably in width on the machine by using finer or coarser sizes of yarn, by braiding a close or an open stitch, by varying the adjustment of the selvedge bars, by varying the size hole in the former, and by using lighter or heavier bottom weights.

12. Flat Braiders with 25 carriers or more are provided with selvedge posts and bars. Smaller braiders can be supplied with these parts when specified. The selvedge bars are two steel pointed rods extending from the selvedge posts to the center of the machine just under the former. These bars are important factors in producing good braid. There is no rule for the proper adjustment of these bars, as different kinds of yarn require different adjustments. The bars can be bent up or down or moved in or out until satisfactory results are obtained. The bars are highly polished, and the points should be kept smooth and slightly rounded so that there shall be no burrs on the ends.

13. The machines are automatic in their operation, and when once properly set, the only attention required is in replacing empty bobbins or in piecing up the ends when the yarn breaks. Girls are usually employed to operate the machines. One operator can look after from 50 to 100 or more machines, depending upon the class of work and the size of the machines.

14. For silk work, it is sometimes desirable to have the holes in the tops of the carriers fitted with porcelain eyes.

15. The direction of the driving pulley on the machine should be such that the carriers will run with the bobbin spindles ahead.

Instructions for Ordering Braiding Machines

1. Number of Carriers.
2. Size of braider (No. 1 or No. 2.)
3. Style of carrier (flat back or old style), also state if porcelain eyes are wanted and if so, whether in top or in both holes. State whether wanted for bobbins or cops, whether bottom latch (Page 37) or cop holders (iron or wood) Page 41. Size of bottom weights. List is given on Page 38.
4. Style of overhead (see Page 11). Give style by number if possible. If No. 8 is wanted, give size of sheave by diameter.
5. Change gears: Four gears are furnished with each machine. Give size of gears by number of teeth, or give number of stitches per inch wanted in the finished braid, or send sample of the braid to be made.
6. If braiding machine is for flat elastic, in addition to the above, tell whether or not selvedge bars and posts are wanted.
7. When referring to a past order, give **our** order number.

BRAID

A BRAID is formed by crossing a number of strands diagonally in such a way that each strand passes alternately over and under one or more of the others.

Many varieties of Material are used for making braids, such as cotton, wool, worsted, mohair, silk, linen, flax, hemp, jute, metal thread and tinsel, artificial straw and wire.

Braids are divided into two general classes: Flat Braids, which are in the form of a flat strip or tape made in widths from $\frac{1}{8}''$ to $2''$; and Round Braids, which are made tubular and are formed hollow or around a center core.

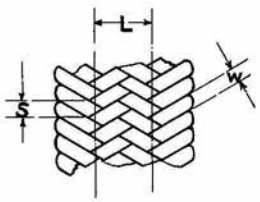


Fig. 1

In a regular braid, each strand passes alternately over and under two of the opposite strands, and the braid shows two complete double ribs or lines of herring-bone shape.

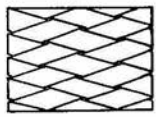


Fig. 2

Flat Braids are known to the trade by the number of these lines which they contain. In the enlarged view of a braid shown in Figure 1 the width "L" is known as a line and the length "S" one stitch or pick. "W" represents the width of the strands of the material from which the braid is made.

Plain Flat Braids are made with an uneven number of strands. The number of strands in a plain braid is easily determined from the number of lines, without the necessity of counting the individual ends of yarn.

In a Flat Braid the number of strands is equal to four times the number of lines, plus one.

Tubular Braids are made with an even number of strands, this number being four times the number of lines.

Diamond Braids, or Braids with a Basket Stitch, are those in which each strand passes alternately over and under one of the others. Fig. 2.

Flat Diamond Braids contain an even number of strands, and in order to produce this braid, terminal gears are used in the machine with an even number of horns. Six-horn terminal gears are commonly used.

Tubular Braids with Diamond or Basket Stitch can be made on any Tubular Braider by omitting every other carrier or by putting the carriers in the machine in such a way that two carriers will run in one direction, the next two in the opposite direction, and so on.

A great many fancy effects can be obtained on plain braiders.

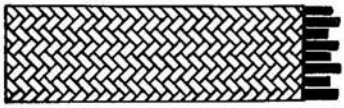
A ribbed effect is produced on either flat or tubular braids by using warp threads.

When warp threads are to be used, it is necessary to equip the machines with hollow warp studs and warp guides.

By omitting some of the carriers or running them empty. Open-work Braids are made. Other effects can be produced by the use of biese or gimp warp threads of contrasting colors.

By using different tension weights, Wave Braids and Rickrack Braids are produced.

Elastic Braid



FLAT–Elastic Braid is made by passing a rubber thread under tension through the center of each horn gear of a braiding machine as the braid is being formed.

Rubber thread warps of 120 ends are most economical for small braiders such as 13 carrier, 17 carrier, 21 carrier and 25 carrier. 20 beams of 6 threads can be filled at one time for a 13 carrier braider, 15 beams of 8 threads for a 17 carrier braider, 12 beams of 10 threads for a 21 carrier braider and 10 beams of 12 threads for a 25 carrier braider.

The size of rubber thread designates the number of threads per inch,—namely No. 20 thread, 20 threads per inch, No. 34 thread, 34 threads per inch, etc.

This material is furnished in chain form, or the 120 ends. 70 yards long, interlaced without tension. The threads must be transferred from chain form to the rubber beams which are placed in suitable fixture for controlling the tension evenly under each braider. Individual tensions for each rubber thread are sometimes used.

Full Elastic Braiders equipped for this work are provided with warp studs, warp guides with rolls, and hollow selvedge posts with rolls. The smaller sizes of machines, those with less than 25 carriers, are sometimes made without the selvedge posts and bars.

The parts can be supplied for changing over our regular braiders to make them suitable for this work.

Round Elastic Braids are made on round or tubular braiding machines. No alteration in the machine is necessary for this work, as the desired number of rubber threads, under the proper tension, are passed up through the center of the machine and the braid formed around them.

Specifications for elastic braids require that they shall be capable of being stretched to a certain amount.

The standard specifications for elastic braid call for 100% stretch, but often more stretch is required. The amount of stretch is determined by the tension which is put on the rubber threads as they are fed into the machine and by the length of the stitches in the braid.

In counting the number of picks or stitches in an elastic braid to determine the proper change gears, the braid should be stretched to the tension under which it is made.

In determining the output of a braiding machine on elastic braid, the regular formula should be used; but it is necessary to divide the result by the length to which one inch of the braid is stretched.

The formula for figuring the production output of No. 1 and No. 2 Braiding Machines, at the usual speed in inches per minute, is 288 divided by the number of picks or stitches per inch in the braid when stretched, and this result divided by the length to which one inch of the braid is stretched.

Flat Elastic Braiders

Without Selvedge Posts and Bars

No. 1 Braiders		No. 2 Braiders	
Carriers	Code	Carriers	Code
9	Behutsam		
13	Behuwdzoon	13	Benhail
17	Beibringen	17	Benight
21	Beicada	21	Benighted

With Hollow Selvedge Posts and Regular Bars

9	Baetulis		
13	Baeurisch	13	Brahmin
17	Bafari	17	Buddha
21	Baffone	21	Bengal
25	Bafordo	25	Beichtbuch
29	Bagando	29	Beichtend

Same dimensions as regular Braiders of the same sizes.

Manufacture of Shoe Laces

Yarns

THE yarns used in the manufacture of shoe laces are usually 30-2 ply and are dyed in various colors. These yarns are received at the braid factory in what is known as ball warps, each warp containing 378 ends and each end is usually 6,000 yards long.

Rayon and Silk

This material comes in various colors in skein form, and the size is known as 150 denier, and if doubled, it is called 300 denier, and so forth.

1800 yards of 150 denier weighs one ounce.

900 yards of 300 denier weighs one ounce.

Bobbins

No. 1 bobbins, 1-5/16" diameter by 3¼" traverse are the smallest size and fit our No. 1 braiders. They are generally used for silk and rayon braids. No. 2 bobbins are larger, being 1⅞" diameter by 3½" traverse, and are for use in our No. 2 braiders. This size is used for cotton yarns, and is illustrated on Page 41. We recommend the bottom latch type for shoe laces.

Winding

The yarns are usually wound from the ball warp on to braider bobbins through the use of a quiller. Each quiller has 378 bobbin spindles, and is designed to distribute the yarn evenly on to the braider bobbins. The No. 1 bobbins hold approximately 1,000 yards each, and the No. 2 bobbins approximately 2,000 yards each, but this yardage varies somewhat according to the size of the yarn used.

The bobbins are placed on the quiller with the ratchet end down, and if they are of the top weight type, they must rotate in a counter clockwise direction. It is also necessary that the yarns be wound on the bobbins on the right-hand side.

One operator can fill 2,268 No. 1 bobbins and 1,134 No. 2 bobbins from one ball warp in four and one-half hours. This, of course, will vary considerably, according to the number of ends on each bobbin.

Quillers are more economical to use when running 100 or more braiders. For less than that number, the proper method of spooling would be to purchase a single or a double spooling machine arranged to wind yarn from skeins or large packages directly to the braider bobbins. For countries where the yarns in various colors are difficult to obtain, it is advisable to purchase the yarns in colors on universal wound braider cops ready for the braiding machine. Of course, this method costs more per pound of yarn than the other method, but the cost of the winding equipment and the operators is thereby saved; also if the manufacturer intends to purchase more braiders later, he can then secure the more economical equipment consisting of quillers.

Silk and rayon skeins are put on a silk winder and wound on large silk spools or bobbins. These spools are then transferred to another winder known as a Doubler and rewound to a braider bobbin. This doubler is designed to put one or more ends of material on a braider bobbin.

Braiding

Braiding is the next operation after winding or quilling. The braider bobbins filled with yarn are placed on the carriers and threaded in the manner shown on Page 36. From the carriers, the yarn is led to the center through the former, and up through the roll. The braider is then started by power and the process of braiding has commenced.

As the braid is made, it is fed through the three roll take-up and the side can take-off into roving cans. The stitches or picks per inch in the braid are controlled by the change gears on the upper right-hand side of the braider. These gears also govern the production of the braider. One machine will produce on an average of 420 feet of braid per day. This, of course, is approximate, as production varies somewhat according to the number of stitches per inch in the braid.

Tipping

The roving cans filled with braid are next taken to the tipping machine. One end of the braid is taken from the roving can and fed through the tipper. This machine automatically pulls the braid from the roving can, measures the laces to the desired lengths, puts on either celluloid or metal tips, cuts the lace, counts, and bundles one gross or 72 pair at the rate of 255 gross per nine hours. One operator can take care of two machines.

Pairing

After the laces have been inspected, they are then ready for pairing. One operator can pair about 8,640 laces or 4,320 pair in a ten-hour day. When the laces are sold for retail trade, the usual procedure is to put them in bundles of 24 pairs each; whereas, if they are for the shoe manufacturers, they are not paired, but are put up in five-gross bundles or 720 laces to the bundle. This bundle is made up as follows: The 720 laces are tied in the center, wrapped in paper, and labeled for shipment.

Braiders

On page 15 is illustrated a 44-carrier braider such as is used in the manufacture of shoe laces. Shoe lace braiders of other sizes are also listed on this page. The sizes usually produced in this country are the 32, 44, 52, and 64 carriers. The construction of these machines is described in our catalog.

Braider Carriers

The braider carriers are the parts in the braider which support the bobbins of yarn, and travel in the serpentine path. These are known as " Carriers ". The name is taken from the function of carrying the bobbin. The threading of the carrier is illustrated on Page 36, and is as follows:

1. Place the bobbin on the carrier spindle and pass the yarn through the hole in the back of the carrier.

2. Put the bottom or tension weight on the carrier back in the manner shown in the illustration.

3. Pass the yarn down the back of the carrier between the inside of the bottom weight and the back of the carrier, and around the groove in the bottom weight, then up through the hole in the top of the carrier.

4. Put on the top weight in the position shown in the illustration.

Bottom or Tension Weights

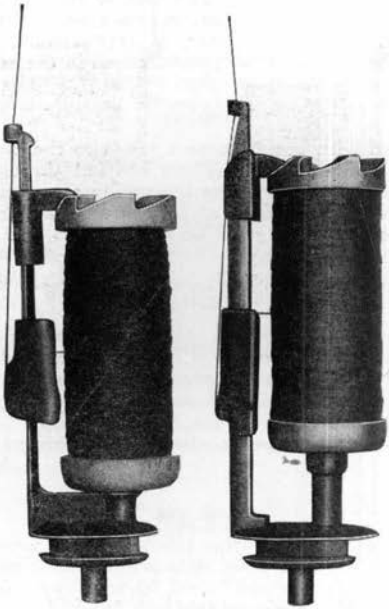
On Page 38 the bottom weights for the No. 1 and No. 2 braiders are listed in ounces. The most popular sizes for shoe laces are ½ oz., ¾ oz., ⅞ oz., and 1 oz. Their function is to give the correct tension to the yarn, so as to make a tight or a loose stitch, whichever is called for. They are also the means of stopping the braiders when the yarn becomes loose or breaks.

Change Gears

On Page 38 the change gears are listed by the number of teeth; these gears govern the production and stitches per inch of the braid.

A production table in feet per hour and stitches per minute or inch is given on Page 9 of the catalog.

Carriers



F. B. O. S.

Top and Bottom Weight Type Carriers

CARRIERS for No. 1 and No. 2 Braiding Machines are made in two types: one with a triangular upright is called " O.S." or " Old Style Carrier," and the other with a flat upright is called " F.B.," or " Flat Back Carrier." We can furnish either style of carrier in various heights to take our regular size bobbins. We can also furnish carriers to take special size bobbins.

For Regular Size Bobbins

No. 1 O.S. Height, 6⅜, 6⅞, 7⅝, 8, 9¼"
No. 1 F.B. Height, 6¼, 6¾, 7, 7⅝"
No. 2 O.S. Height, 6-13/16" 7, 8½"
No. 2 F.B. Height, 6½, 7⅛, 7½"

For Special Size Bobbins

No. 2 F.B. Height, 7½"—for bobbin, 1⅞" x 4½"
No. 2 Wide Height, 7¾"—for bobbin, 1⅞" x 5"

For No. 2 Tubular Braiders with one-half the regular number of carriers

O.S. Height, 7⅛" for 2⅝" x 4" bobbin.
Wide Height, 9½" for 3¼" x 6" bobbin

For 3-Carrier Double Braiders

No. 2 O.S. Height, 6¼" for 2⅜ x 3¾" bobbin
No. 2 F.B. Height, 7¼" for 2⅜" x 3¾" bobbin

For Large 3 and 5-Carrier Rug Braiders

Height, 11" for 4½" x 6½" bobbin

Carriers

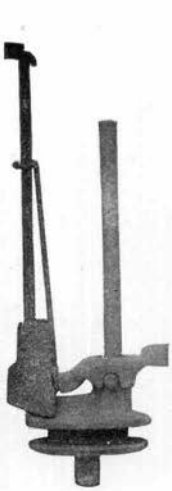


Fig. 1

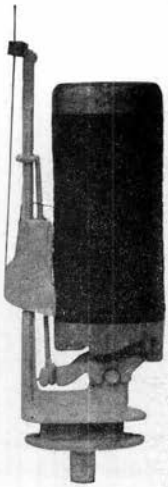


Fig. 2

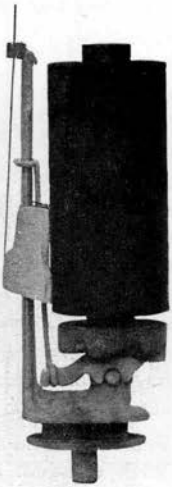


Fig. 3

Fig. 4

Bottom Latch Carriers

(Patented Feb. 6, 1923)
Patent 1444513

WE are prepared to furnish our bottom latch carrier in various sizes. This carrier is shown in Figure No. 1. It is designed to be used with the ordinary bobbin inverted as shown in Figure No. 2, or with a wooden or metal cop holder for holding the yarn in cop form wound on a $\frac{5}{8}''$ tube as in Figure No. 3.

By removing the bottom latch and wire, the carrier can be used in the ordinary way with top weight as in Figure No. 4.

This carrier is of very simple construction.

The bottom latch is of cast iron and rests on two trunnions cast on the opposite sides of the carrier. This construction insures an easy motion and does away with any tendency to cramp the latch

The latch is operated by a wire which hooks into the latch on one end and slides on the carrier standard. As the bottom or tension weight is raised, it lifts this wire and releases the latch from engagement with the bobbin ratchet.

The bobbin or cop holder rests on the latch, which is so shaped on the top surface that the bobbin is slightly raised as the latch is lifted. The weight of the bobbin on the latch insures a quick return.

This bottom latch carrier is suitable for all plain braiding work, and can be run at a considerably higher speed than the ordinary carrier with top weight.

Bottom Latch Carriers

For Regular Size Bobbins or Cops

No. 1 F.B. Height, 6¼″
No. 2 F.B. Height, 6⅜″
No. 2 F.B. Height, 6½″
No. 2 O.S. Height, 6-11/16″

For Special Size Bobbins or Cops

No. 2 O.S. Height, 8½″ for bobbins 1⅞″ x 5″
No. 2 F.B. Height, 7½″ for bobbins 1⅞″ x 5″
*Wide F.B. Height, 8″ for bobbins 1⅞″ x 5″

For 3-Carrier Double Braider

No. 2 O.S. Height, 6¼″ for bobbins 2¼″ x 4″
No. 2 F.B. Height, 7¼″ for bobbins 2¼″ x 4″

For 16-Carrier No. 2 Round Braider With one-half full number of carriers

No. 2 O.S. Height, 7⅛″ for bobbins 2⅝″ x 4″
Bottom Latch Carriers use cops 1 inch longer than bobbins

*Carriers marked with * require special weights.
Carriers can be fitted with porcelain eyes in one or both holes if required.

Gears and Weights

Top Weights

Regular Skeleton Forked

Bottom Weights

for No. 1 and No. 2 O. S. or three-cornered carriers.
Ounces—½, 1, 1¼, 1½, 1¾, 2, 2½, 3, 3½, 4, 5, 5½, 6, 7.

O.S. Special for using with ½ full number of carriers in Round Braiding Machines.
Ounces—8, 10, 12, 16, 20.

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for flat back carriers.

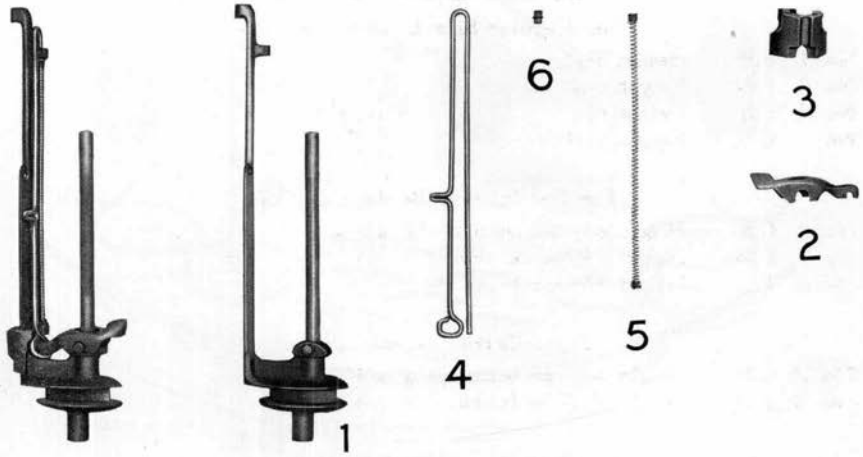
No. 1, ounces—¼, ½, ¾, 1, 1½, 2, 2½, 3, 3½.
No. 2, ounces—½, ¾, ⅞, 1, 1½, 2, 2½, 3, 3½, 4, 5

Change Gears

for No. 1 and No. 2 Braiders, 16 pitch, 7/16″ face.

No. of teeth: 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 68, 72, 82, 92, 96, 100, 108, 112, 120, 128.

Carriers



"Hagg" High Speed Spring Center

Patented

February 6, 1923, Patent No. 1,445,513
November 6, 1928, Patent No. 1,690,897
August 26, 1930, Patent No. 1,774,056

HAGG Carriers as shown above, can be furnished for our No. 2 Braiders. They are designed to be used with the bottom latch bobbin inverted, as shown on page 37, Figure No. 2, or with a wooden or metal cop holder for holding the yarn in cop form wound on $\frac{5}{8}$" tubes, as shown on page 37, Figure No. 3.

This carrier is of very simple construction. The bottom latch feature is the same as described on Page 37. The latch wire of special design, is attached to the bottom latch in the same manner as on our Bottom Latch Carrier, but slides in a hardened steel bushing secured in a bearing at the top of the carrier, and through a similar bushing and bearing in the braider stop which slides on the carrier standard.

On the latch wire, and between the braider stop and top bearing, is a tension spring. The action of this spring is positive and rapid, keeping a constant tension on the yarn at high speeds.

To thread this carrier, the yarn must pass from the package through a slotted hole in the carrier standard, designed for quick threading, under the braider stop and up through the hole at the top.

The Hagg High Speed Spring Carrier will increase braiding production from 35% to 75%, depending on the kind of work to be done.

The carrier consists of the following parts:

Part No.	Part Name
1	Carrier Plain
2	Bottom Latch
3	Braider Stop
4	Bottom Latch Wire
5	Tension Spring
6	Bushing

When ordering parts, give name and number of part.

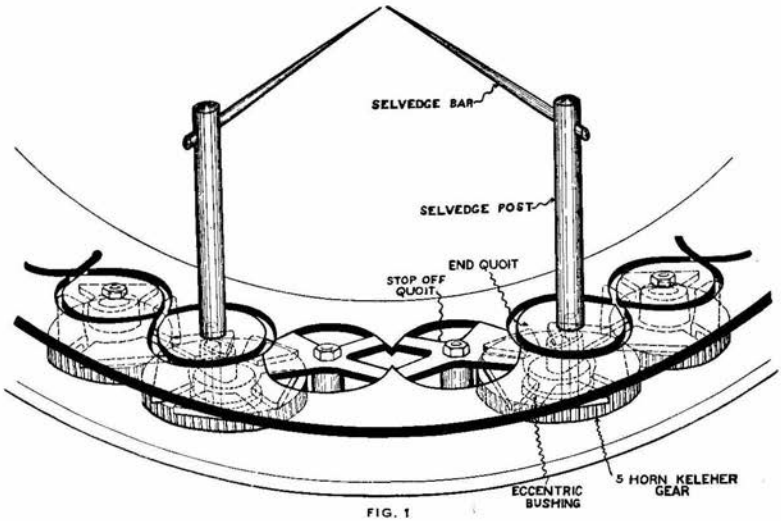


FIG. 1

Change Parts for Braiding Machines, Stop-off Parts

ROUND or Flat Braiding Machines can be cut down to Flat Machines with a less number of carriers by using what are called our Keleher Gear Sets.

A set of parts for cutting down a Braiding Machine, either round or flat, consists of one 5-horn Keleher Gear with horns extended to the center, an eccentric bushing which fits into the horn gear, an end quoit of suitable shape to allow the carrier to turn, and a stop-off quoit.

In changing a round Braiding Machine to a Flat Machine, two Keleher Gear sets are required.

To make the change, three or more of the 4-horn gears at the front of the machine are removed and the 5-horn Keleher Gears inserted in the position where it is desired to stop off the machine.

The Keleher Gear has a large hole in the center fitted with an eccentric bushing. The object of the eccentric bushing is to enable the bolt holding the gear to be placed in the same holes in the top and bottom plates as used for the 4-horn gears.

The end quoits are placed over the 5-horn Keleher Gears and the stop-off quoits are fitted to the spaces from which the 4-horn gears were removed.

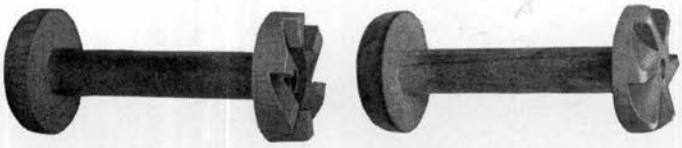
In machines which are stopped off to flat machines with more than 25 carriers, it is necessary to use selvedge posts and bars at the center of the 5- horn Keleher Gears.

In smaller machines, these posts and bars are not necessary.

Fig. 1 shows the front of a round Braiding Machine stopped off to a flat machine.

In the machine shown, four of the 4-horn gears have been removed and the two 5-horn Keleher Gears inserted. In this case, the flat machine would have 3 less carriers than the round machine from which it was converted.

Bobbins



Top Latch Type Bottom Latch Type

No. 1

F.B. 1-5/16" Diameter, 3¼" Traverse.
O.S. 1-5/16" Diameter, 3¼" Traverse.

No. 2

F.B. 1⅞" Diameter, 3½" Traverse.
O.S. 1¾" Diameter, 3¼" Traverse.

3-Carrier Double

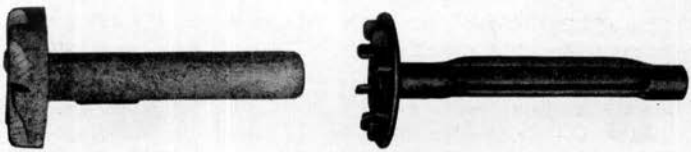
2⅜" Diameter, 3¾" Traverse.

3 and 5-Carrier, Small and Large Rug

3¼" Diameter, 6" Traverse.
4½" Diameter, 6½" Traverse.

PLAIN OR SHELLAC FINISH **SPECIAL SIZES TO ORDER**

Cop Holders



Cop holders can be furnished for carriers on our No. 1 and No. 2 Braiders. With cop holders, yarn is used in cop form instead of being wound on bobbins. The advantages of this arrangement are as follows:

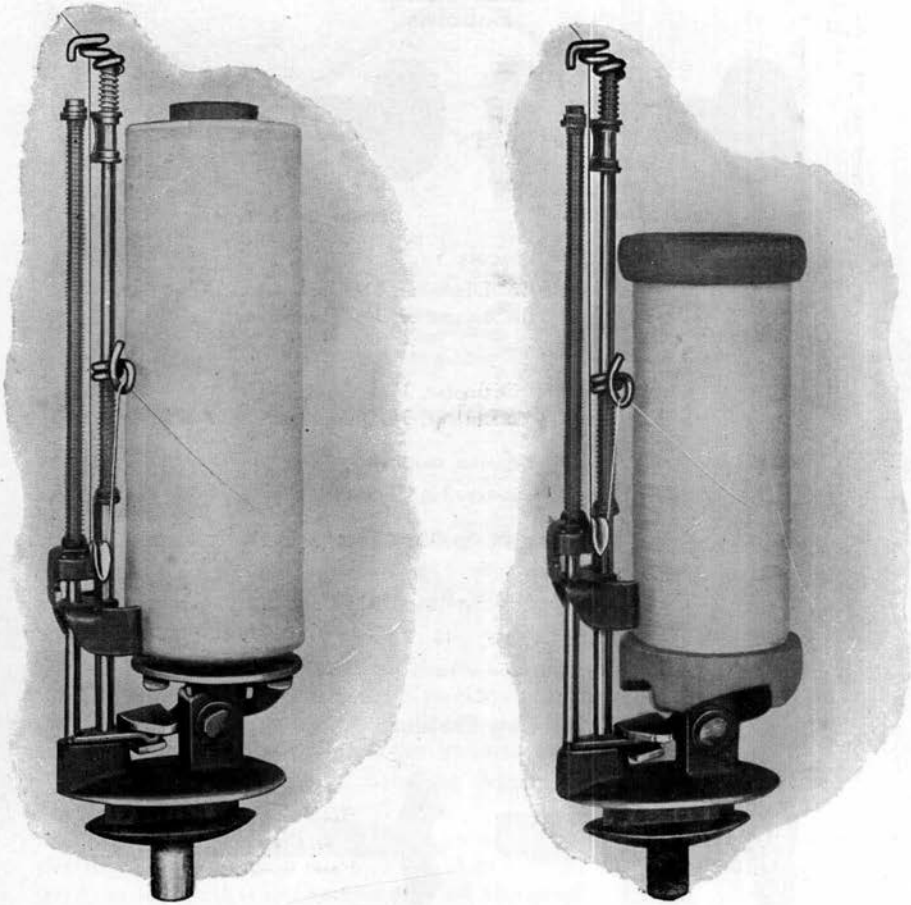
A large increase in yarn capacity.
A small amount of waste.
An increased speed of the braider.
The elimination of the top weight.

When machines are furnished with either wood or metal cop holders, the holders are all made to take cops wound on pasteboard tubes with ⅝" hole.

Carriers take cops of yarn 1" longer than the traverse of bobbins used on the same size of carrier.

The sizes of the cops of yarn for our regular carriers are as follows:

For No. 1 Braiders—1-5/16" diameter x 4½" long.
For No. 2 Braiders—1⅞" diameter x 4½" long.



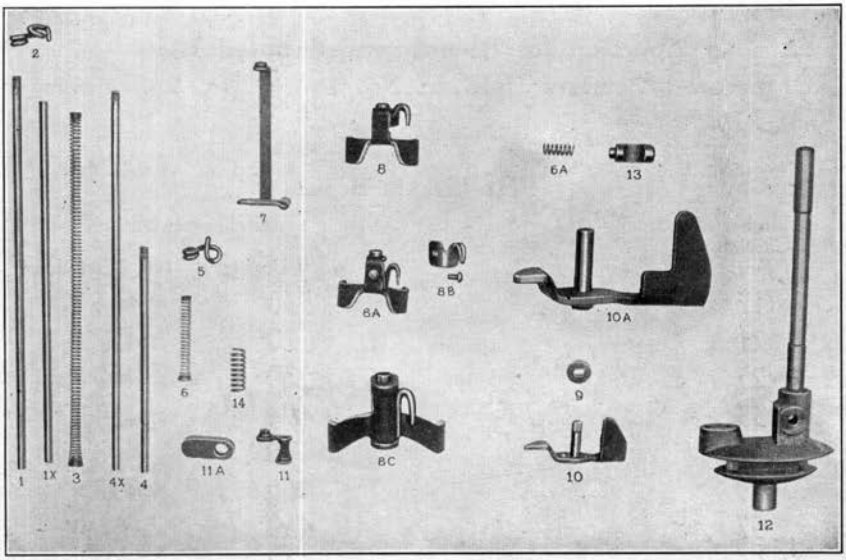
" Mosspeed " Carriers

MOSSPEED Carriers as shown above are designed to increase the production over regular top latch and bottom latch types. They are designed to produce a smooth, instantaneous, and unfailing yarn tension at high speeds.

This carrier replaces the drop weight gravity tension types with a spiral compression spring tension which is so positive, sensitive and rapid that a braiding machine equipped with these carriers can be run at from 35% to 85% greater speed (depending on the kind of work to be done) without danger of " bowing " or looping of the yarn.

These carriers are equipped with " pigtail " open-end thread eyes in preference to the usual eyelet type eye, in order to facilitate threading the carriers, resulting in the reduction of doffing time to a minimum.

We can furnish these carriers for both No. 1 and No. 2 braiders and designed to use either top latch type inverted or bottom latch type bobbins as shown on Page 41 or with a wooden or metal cop holder for holding the yarn in cop form wound on $\frac{5}{8}$" tubes as illustrated above.



Parts for Following Standard MOSSPEED Carriers

¾TX - 1BX - 1BAX - 1TX - 1½TAX - 2BX - 2TBX - 6BX
3BX - 3TX - 4BX - 2TX - 4TX - 5TX - ¾T - 1B - 1BA
1T - 1½TA - 2B - 2TB - 6B - 2T - 3B - 3T - 4B - 4T - 5T

Part No.	Part Name
1	Tension Rod
1X	Tension Rod (for "X" type Carrier)
2	Top Threadeye
3	Tension Spring
4	Center Rod
4X	Center Rod (for "X" type Carrier)
5	Center Threadeye
6	Pawl Spring
6A	Pawl Spring (for No. 5 size Carrier)
7	Pawl Lift
8	Braider Stop
8A	Braider Stop with Detatchable Threadeye
8B	Braider Stop, Detatchable Threadeye and Rivet
8C	Braider Stop (for No. 3 Carrier and larger)
9	Pawl Washer
10	Pawl
10A	Pawl (for No. 5 size Carrier)
11	Connecting Link (for smaller sizes of "X" type Carrier)
11A	Connecting Link (for "X" type Carrier No. 3 and larger)
12	Base
13	Pawl Spring Pin (for No. 5 size Carrier)
14	Connecting Link Shift Spring (for "X" type Carrier)

When ordering parts, give size of MOSSPEED Braider Carrier and Part Number. For example, if one hundred tension rods for 2-B carriers are required, order as follows:

100—2B, Part No. 1

If required for "X" type Carrier:

100—2BX, Part No. 1X

NOTE: Standard heights or sizes will always be furnished unless otherwise specified.

Approximate Recommended Speeds for Mosspeed Carriers Used in No. 1 and No. 2 Braiders

Flat Elastic Braid

Number of Carriers in Braider	Stitches per Minute	
	No. 1 Braider	No. 2 Braider
17	530	464
21	520	452.8
25	510	440
33	494	424
41	480	408
49	466	392
57	450	376
65	440	360

R. P. M. of horn gears equal stitches per minute divided by two.

Round Braid

Size of Braider	Recommended Horn Gear Speed	Approximate Excursions of Carrier around top plate on the following sizes of braiders.			
		16	20	24	36
No. 1 and No. 2	256 r. p. m.	64	51.2	42.6	28.4

Note: The above tables of recommended speeds are based on average conditions and may have to be modified slightly to suit conditions peculiar to any one particular installation. Conditions of braid, strength and quality of yarn, type and class of braid, arrangements of braider, etc., are the factors which have to be taken into consideration.

NEBUTTCO